

J.R.Loofbourow, Professor and Faculty Chairman, Dies

Dr. John R. Loofbourow, professor of biophysics and former chairman of the faculty of the Institute, died at the Massachusetts General Hospital January 22, after a brief illness.

Dr. Loofbourow, the son of John Wilson and Henrietta Loofbourow, was born in Cincinnati, Ohio, on November 1, 1902. He was educated at the University of Cincinnati, which awarded him the degree of Bachelor of Arts in 1923. The University of Dayton awarded him the honorary degree of Doctor of Science in 1936.

Dr. Loofbourow served as an instructor of Physics at the University of Cincinnati from 1925 to 1929, and as a research associate for the following six years. From 1935 to 1936 he was Professor of Biophysics at the University of Dayton, and was a Research Professor at the Institutum Divi Thomae from 1935 to 1940, when he was appointed an Associate Professor at the Massachusetts Institute of Technology. In 1945 he was promoted to the rank of full Professor and appointed Executive Officer of the Department of Biology. He also served as Chairman of the Faculty.

Dr. Loofbourow was Executive Secretary of the Radar Division of the National Defense Research Committee from 1942 to 1946. From 1931 to 1940 he was president of the Cheviot Theatre Corporation, and from 1924 to 1934 he was con-



Dr. John R. Loofbourow

sultant to the Crosley Radio Corporation. He had also served as special advisor to the Atomic Energy Commission in 1947 and 1948. For "outstanding services to his country" Dr. Loofbourow was awarded the President's Certificate of Merit in 1948.

Dr. Loofbourow was a fellow of the American Association for the Advancement of Science, the American Physical Society, the American Academy of Sciences, and the New York Academy of Sciences. He was a member of the Chemical Society, (Continued on Page 2)

Rifleman Tie World's Record In Triumphant Southern Tour

During the midterm vacation, the Technology varsity rifle team took an eight-day tour which was probably the most extensive and successful that any shooting aggregation has ever undertaken. In the course of the trip, the team broke the range record of every range that it fired on, and as a result, now holds records at six of the seven schools at which it competed.

The tour started out with a bang on Saturday, January 27, when Tech met the world's record-holding University of Maryland team and last year's intercollegiate champions from West

Point in a triangular match at the Maryland range. Tech jumped to an early lead in this match through the high scores turned in by the first relay. By the time the second relay was completed, the Tech team had broken the all-time world record of 1430, and led the Marylanders by a 1432 to 1431 score.

However, the southerners put on a desperate last-minute drive which Tech could not match in the final relay. This gave the victory to Maryland with a 1440 total score, and a new world's record. Tech came out a strong second with 1432, and West Point finished third with 1424. The Beavers were sparked by Charlie MacDonald's stellar 292 which took the top individual honors for the day. Allan Tanner, Herb Voelcker, Mel Bowers, and Art Auer supplied the supporting scores.

Beaver Sweep

After this first spectacular encounter, the rest of the tour was relatively easy coasting for the Techmen. On Tuesday morning the team met the National Hearst Trophy Champions from Duquesne University in a shoulder-to-shoulder match in Pittsburgh, and administered a resounding defeat via a 1420 to 1364 final count. Voelcker, Bowers, Tanner, McCoy and MacDonald supplied the five scores in that order of relative magnitude. In the afternoon of the same day, this same crack five-man team defeated the University of Pittsburgh on the Pitt range by a 1414 to 1378 score.

The team interrupted its journey to New York City on Wednesday long enough to fire against the rifle team from Rutgers University. Captain Herb Voelcker and Manager Allan Tanner, supported by Zartarian, MacDonald, and Bowers, led the squad to a 1424 to 1394 victory.

Tie World's Record

On Thursday, Coach Jim Brahe selected a crack six-man team (five (Continued on Page 3))

Tau Beta Pi Announces 1951-52 Fellowships

Tau Beta Pi, honorary engineering fraternity, has announced its eighteenth program of fellowships for graduate study in engineering for the school year 1951-52. All members of the organization are eligible to compete for the \$1200 stipends which are payable in ten monthly installments.

In addition to the cash awards, remission of most or all of the tuition fees of the school of the recipient's choice may be arranged by Tau Beta Pi. Fellows are expected to pursue research, practice, or teaching in the engineering field. In determining fellowship recipients, the Board will be governed first by practical considerations of need.

Additional information may be obtained from Mr. Paul H. Robbins, 1121 15th St., N.W., Washington, D. C.

Scientists' Salaries Lower In Schools

Salary levels of the Nation's top scientists are considerably lower in colleges and universities than in either government or private industry. Earnings are highest in private industry not only for the entire group of scientists but also for those in each age group, in every scientific field, and in every region of the country.

This is one of the major findings of a study of the employment, education, and earnings of the country's leading scientists. The study, which covers 42,000 of the 52,000 scientists listed in the 1949 edition of the biographical directory "American Men of Science," was made by the U. S. Department of Labor's Bureau of Labor Statistics in cooperation with the Department of Defense.

The scientists studied were predominantly research workers. Next to research, teaching was the activity most often reported.

Chemists were by far the largest group, comprising about one-fourth of the scientists in the survey. The biologists were second and the engineers third, although the total (Continued on Page 2)

Enrollment, Construction Suffer As Mobilization Comes To Tech

By ED LEONARD

Uncertainty is the keyword throughout Technology as this spring term begins. Because of the lack of official government regulations, and because of the larger number of "suggestions, and warnings" coming from political and economic circles, institute life seems to be in a fluid state.

Registration has not yet been seriously affected by the draft, or by students leaving school because of the "war scare," reports Registrar J. C. MacKinnon. Preliminary figures from last term indicate, however, that a substantially higher-than-usual percentage of freshmen flunked out. Percentages were about normal for the three other undergraduate classes. Registration, which usually falls off during the second term, did not seem to indicate any serious trends, according to information from the Registrar.

Walker Prices Uncertain

The Walker Memorial Dining Service complained of greatly-increased food prices. The Assistant Director of Dining Halls, W. H. Carlisle, stated that if students had been more receptive to contract feeding it would have been possible to order food for the entire term at greatly reduced prices. "The absence of strict controls and price rollbacks may force us to increase our prices sometime this term," Carlisle prophesied.

C. M. Peterson, Director of Buildings and Power, announced that the present building material shortages, and some government restrictions on private building may affect the Institute's development program. Construction of the Biology and Metals Processing Laboratories will, however, proceed normally for the next six weeks, Peterson predicted. "What will happen then, and what will be the fate of the projected Kresge auditorium is anybody's guess," he declared.

The Methodist Temperance Society's *Clipsheet* announced that (Continued on Page 4)

U. S. Air Force Honors Institute Prof. C. Draper

The U. S. Air Force presented a Scroll of Appreciation to the Institute during the examination period in recognition of "outstanding scientific contributions to the technical advancement of Air Power" during and since World War II.

Thomas K. Finletter, Secretary of the Air Force, presented the scroll to President James R. Killian, Jr., in ceremonies held here. The scroll reads: "In appreciation to the Massachusetts Institute of Technology for outstanding scientific contributions to the technical advancement of Air Power—By pioneering in the field of research, the Institute has given to the Air Force specific and essential instruments and techniques by which it will maintain its position as the leading Air Power of the world."

Award to Draper

In a second Air Force presentation, Professor Charles S. Draper was given the Exceptional Service Award for his work in solving Air Force Technological problems. Draper is Deputy Head of the Aeronautical Engineering Department and Director of the Instrumentation Laboratory. He is widely known for his work on a computing gunsight for fighter aircraft.

Developed by Dr. Draper in conjunction with the Sperry Gyroscope Company of Great Neck, Long Island, this sight solves the fire control problems for the pilot of the jet airplane flying at near-sonic speeds. The sight can also "see" through darkness and bad weather by means of radar.

In accepting the award, a scroll (Continued from Page 4)

Space Now Available For Limited Parking

Space for over 300 cars is now available in the area adjacent to the newly acquired Lever House and any Institute staff member or student commuter who has been unable to obtain parking permits but feels that commutation would be eased by driving is welcome to make application, announced Mr. R. M. Kimball, Director of the Division of Business Administration, yesterday.

Application for permit should be made at the office of the Superintendent of Buildings and Power, Room 24-117.

To exclude those not authorized, any car without the appropriate sticker will be impounded. The charge for returning the car will be \$5.00; proceeds will go to support student activities. The object of this policy is to keep the parking area available for those that need it.

Senior Rings

Representatives of L. G. Balfor Company will be at the Institute on February 19, 20, and 21 to take orders for Class-of-1952 Rings. The contract was signed Wednesday, Feb. 17, by Senior Ring Chairman Henry G. Mohorst '52, and the Senior Ring Committee composed of Arthur A. Wasserman '51, Walter E. Casey '51, and William H. Shenkle '51.

Linear Accelerator Now In Operation

Completion of a 17-million volt linear accelerator for use in the laboratory of Nuclear Science and Engineering at the Institute was announced last week-end by Dr. Jerrold R. Zacharias.

This new research tool, like other machines of its kind, will be used for experiments on nuclear structure and to verify—or disprove—hypotheses regarding the structure of matter and its interaction with radiation. Although its energy of 17 million volts is not unusually high by comparison with other machines like the synchrotron, the accelerator will be very useful because of its intense and narrow x-ray beam and its neutron output.

Construction of the linear accelerator was under the general direction of Professor John C. Slater, head of the physics department, who originated the design. Dr. Arthur F. Kip, assistant professor of physics, was in direct charge of its construction.

Unusual Opportunities

Operation of the machine is now the responsibility of Dr. Peter T. Demos and Dr. Isaac Halpern, who have brought it into operation during the past 12 months. They have the help of several graduate and undergraduate students in physics, (Continued on Page 4)

The Tech

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CALENDAR OF EVENTS

FEBRUARY 7 TO FEBRUARY 13, 1951

WEDNESDAY, FEBRUARY 7

Catholic Club. "The Meaning and Purpose of the Lenten Season." Father Alonzo McDonnell, C.S.P. Room 1-190, 5:00 p.m.
 Freshman Basketball Team. Game with Tufts College. Walker Memorial Gymnasium, 6:30 p.m.
 Chemistry Department. Harvard-M.I.T. Physical Chemistry Colloquium: "Intermolecular Forces and Hydrogen Bonds." Dr. Donald F. Hornig, Brown University. Room 6-120, 8:00 p.m.
 Varsity Basketball Team. Game with Tufts College. Walker Memorial Gymnasium, 8:15 p.m.

THURSDAY, FEBRUARY 8

Physics Department. Colloquium: "The Bose-Einstein Condensation of An Ideal Gas as a Phenomenon in Ordinary Space." Professor R. Becker, Carnegie Institute of Technology. Room 6-120, 4:15 p.m.

FRIDAY, FEBRUARY 9

Mechanical Engineering Department. Seminar: "A Strength Theory of Metals Based on Atomic Structure." Dr. Milton C. Shaw. Room 3-270, 4:00 p.m. Coffee served in Room 3-174 from 3:30 to 4:00 p.m.
 Freshman Squash Team. Match with Newton Squash and Tennis Club. M.I.T. Squash Courts, 5:00 p.m.

SATURDAY, FEBRUARY 10

Varsity Wrestling Team. Match with Boston University. Rockwell Cage, 2:00 p.m.

SUNDAY, FEBRUARY 11

Lowell Institute Cooperative Broadcasting Council. SCIENCE ON TRIAL. "What is Mind? Part III." Dr. George R. Harrison, M.I.T.; Dr. Edwin B. Newman, Dr. B. Frederic Skinner, and Dr. George Wald, Harvard University; Reverend Merrill F. Greene, S.J., Weston College; and Willard Carleton, Richard Rush, and Robert Mirak, students at Winchester High School. WHDH and WHDH-FM, 6:00-6:30 p.m.

MONDAY, FEBRUARY 12

Technology Matrons. The Book Club. At the home of Mrs. H. C. Sexton, 2 Larchwood Drive, Cambridge, 3:00 p.m.
 Aeronautical Engineering Department. Seminar: "Some Dynamic Aspects of Aircraft Structures." Professor Nicholas J. Hoff, Polytechnic Institute of Brooklyn. Room 33-319. 4:00 p.m. Refreshments in du Pont Room from 3:30 to 4:00 p.m. For Graduate Students and Staff.
 Staff Players of M.I.T. Supper Meeting. Emma Rogers Room, Room 10-340, 6:15 p.m.

TUESDAY, FEBRUARY 13

Varsity Rifle Team. Match with Norwich University. M.I.T. Rifle Range, 3:00 p.m.
 Biology Department. Colloquium: "The Inorganic Chemistry of Haemoglobin." Dr. Charles C. Coryell. Room 10-275, 4:00 p.m.
 Tech Model Railroad Club. Business Meeting. Room 20E-214, 5:15 p.m.
 Varsity Hockey Team. Game with Middlebury College. Boston Arena, 7:00 p.m.

EXHIBITION

Photographic Salon prints by Boyden W. Hindman of DeWitt, New York, on display in Photographic Service Gallery, Basement of Building 11, from February 12 to March 4, 1951.

CALENDAR OF EVENTS

The Calendar of Events is published weekly on Tuesday in THE TECH, and contains announcements for the following week. A separate listing of the Calendar of Events can be obtained for one dollar a year, payable in advance at Room 7-204.

Announcements, typewritten and signed, must be in the office of the Editor, Room 7-204, not later than noon on Thursday, prior to publication date. Material for the Calendar, February 14-20, is due Thursday, February 8.

Letters to the Editor

Dear Sir:

Last Friday's sports page carried an unjustified attack on the Institute Committee's decision to forget about a football team for M.I.T. If I may be permitted to quote Hank Sharp's figures,

"If there was a Tech football team, would you:

- a) Go to all games (7 games) 7.7%
- b) Go to all home games (4) 38.7%
- c) Go to most home games (3) 26.1%
- d) Go to a few home games (1-2) 11.3%
- e) Very seldom go to any games 10.6%
- f) Probably go to none 5.6%

In other words, 53.6 per cent did not really commit themselves to any real support at all. In view of the fact that the poll was a personal one and the pollsters favorable to the cause, it was considered that any further polling would indicate, if anything, less favorable results. Since it was further considered that, for football, greater school support would be needed than that indicated, and indicated only on paper at that, the matter was dropped.

Incidentally, during the debate on the matter, it was noted that the question of football seems to come up triennially. This indicates, to me at any rate, that there is a small group extremely interested, but which cannot communicate its enthusiasm to the mass of the student body, having tried several times before. Were there real student enthusiasm, Inscom would

have gone along.

KEN KOPPLE, '51

In view of the fact that 46.4% of those polled said they would at least attend all home games, and that the poll was conducted with the assistance of the Economics Department, we do not think the criticism unjustified.

Loofbourow

(Continued from Page 1)

the Physical Society, and the Biochemical Society of England, as well as the Faraday Society, the Optical Society of America, and Beta Theta Pi. He had contributed numerous articles to the literature of his profession.

Dr. Loofbourow is survived by his wife, the former Dorothea M. Gane and their son, John W. Loofbourow.

Salaries

(Continued from Page 1)

number of engineers in the country exceeds the total number of professional workers in all other scientific fields combined.

Educational institutions were the principal field of employment for these leading scientists, with private industry second and government third. Thirty-seven per cent were employed solely by universities and colleges at the time of the survey, and an additional 3 per cent combined education with some other type of employment. The proportion of scientists working exclusively for private industry was 27 per cent, for government agencies 14 per cent.

One of the main purposes of the survey was to provide a roster of the outstanding individuals in

every branch of natural science, and about two-thirds of the Nation's Ph.D.'s in the natural sciences were covered by the study. The small proportion of scientists in the survey who did not have doctorates usually held either master's or M.D. degrees.

For Ph.D.'s in all specialties taken together, the median salary in private industry was \$7,070 a year, in government \$6,280 a year, and in education \$4,860. The engineers had the highest median salary and the biologists the lowest in every type of employment. So important, however, was the difference in salary levels as between one type of employer and another that the biologists working for business firms tended to earn more than the engineers on the college campus.

The older men received higher salaries than their younger colleagues, whatever the type of employment, but median salaries tended to increase more rapidly with age in private industry than in any other type of employment.

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N. E. College Association Plans Basketball Tourney

Eight of the top New England college basketball teams will be invited to compete in a New England invitational basketball tourney to be held in March, it has been announced by the executive committee of the Association of New England Colleges for Conference on Athletics.

Acting upon the recommendation made last spring by the Basketball Committee of this New England Conference, the executive committee had forwarded plans for the tourney to the N.C.A.A. Tournament Committee for approval.

N.C.A.A. Agrees

It was hoped that the N.C.A.A. would consider the winner of the New England Invitational as the District One representative in the March N.C.A.A. tournament. The reply was to the effect that although the winner of the tournament might not automatically be chosen this year, due to the possibility of some top teams being un-

able to compete because of prior scheduled commitments, that: (1) a team would represent District One, and (2) that the New England tournament would be a guide toward the selection of that team.

The New England Tournament Committee hopes that by starting this year, the interest in collegiate basketball will increase and that a higher percentage of participation of invitees will result next year.

Held in March

Details of the tournament will be released in the near future by Tournament Committee Chairman Edward Parsons of Northeastern. It is known that the tourney will be held at some New England college campus the week of the 12th of March. New England colleges are now being asked by Professor Ivan J. Geiger, Secretary of the New England Conference on Athletics, if they will compete in such a tournament if invited and also for their choice of a proposed site.

Technology Hoopmen To Meet Tufts Team In Walker Memorial

Tomorrow evening in Walker Memorial the Beaver basketball team will meet Tufts in an attempt to avenge the 20 point beating administered by the Jumbos on January 20. The Frosh will also meet Tufts in a game which will begin at 6:30. The varsity contest will go on at 8:15.

Tech at present has won four games and lost five. There doesn't seem to be much of a chance for them to reach the .500 mark tomorrow on the basis of their former beating by Tufts. However the Techmen bounced back and beat Trinity in the Garden after taking a bad beating from them a few weeks before and they will be trying to do the trick again tomorrow against a very powerful Tufts quintet.

Marksman Win Seven; Bow Only To Maryland

(Continued from Page 1)

Relay Team Wins In K of C 2 Mile, At Boston Garden

The 1951 Institute Indoor Track season swung into high gear during the three week exam and vacation period.

The emphasis has been almost entirely on the relay teams, opening with the Boston Knights of Columbus Meet at the Boston Garden on January 20. The two-mile relay team won its class relay event, with Harvard running second and Springfield running third. For the Techmen, George Grenier, Bill Nicholson, Ed Olney, and Vickers toured the distance in 8:01.3.

Lose One-Mile Relay

The one mile relay team of Thompson, Stolley, White, and O'Donnell placed fourth in their event behind Tufts, Williams, and Colby. The Freshman mile team of Farquhar, Williams, Klein, and Lovasz placed third in their event.

On January 27 the spotlight shifted to New York's Madison Square Garden, where the 15' 1" height reached by Rev. Robert Richards in the pole vault and a 4:07.5 mile by Don Gehrman stole the headlines. Tech entered only one team, running Grenier, George Thompson, Vickers, and Olney in a one mile class relay. The Beaver runners, after a good first leg by Grenier, faded to a poor fourth behind strong teams from Manhattan, Penn State and New York University.

Relay Teams Run 3rd

Last Saturday night the B.A.A. games at the Boston Garden commanded the eastern limelight with Tech running all three relay teams. The two mile team, again made up of Grenier, Nicholson, Olney, and Vickers, ran third behind Syracuse and Providence. The also rans in this event were N.Y.U. and Harvard. The winning time was 7:51.5, second only to the record breaking 7:41 turned in by Georgetown's crack outfit.

Harvard Wins Dual Meet

In their only dual meet thus far, January 13, against the Harvard track squad, the Beavers proved unready for a team as powerful as the Crimson and bowed by a top-heavy 87-22 count. The only bright lights for Coach Oscar Hedlund's men were the performances of the two mile relay team, which almost lapped Harvard's entry, and of Chuck Vickers, who won handily in the 1000 yard run.

high scores to count) of Voelcker, Tanner, Bowers, MacDonald, McCoy and Hartung to compete against St. John's College in New York. In this match the Techmen really showed their power against the strong St. John's team, and turned in a 1440 total which equalled the record Maryland had set when firing against M.I.T. five days previously.

Herb Voelcker led the team with a new M.I.T. individual record of 295, and was supported by Mel Bowers with a 291, Allan Tanner with 289, "Lightnin' Dud" Hartung with 284, and Charlie MacDonald with 280. St. John's College put forth a 1409 to oppose the Beavers' tally.

Defeat Fordham

A few hours after this spectacular display of Tech power, a short-handed Tech squad defeated Fordham on the Rams' home range to add another scalp to its impressive list.

The finale for the tour occurred on the following day when Tech broke the New York University range record which it had set a year previously. In this match, Mel Bowers topped the individual list with a 288, while Arthur Auer, Herb Voelcker, Dud Hartung and Allan Tanner supplied scores totaling 1419. N.Y.U. shot a team score of 1396.

As a primer for the triangular match southern trip, the Beavers fired a triangular match against Dartmouth and Worcester Polytechnical Institute on January 20. Tech's score of 1426 established a new record on the M.I.T. range, and was far above the 1359 and 1350 shot by Dartmouth and W.P.I. respectively.

Frosh Shine

On January 11, the Beaver cubs fired against Wentworth Institute. The Tech freshmen really showed their strength by winning with a 936 to 887 total in the two position contest. Tech's Jim Crewe highlighted the match by turning in a superlative 196 individual score. Practically all the freshmen show definite promise as prospective varsity material for next year's team.

The southern sweep provided valuable experience and boosted the squad's confidence. Much credit is due to Coach Jim Brahe and Manager Allan Tanner for the excellent way in which this tour was executed. Their efforts coupled with the cooperation of the entire ten-man team yielded a record to be proud of, and definitely places Tech in a top contending position for the national intercollegiate championship.

Beaver Wrestling Team Drops Meet To Amherst

On the Saturday before the vacation, Tech's varsity wrestling team journeyed to Amherst College and suffered their fourth defeat of the season. The team has failed to win a meet this season while tying one. The score against Amherst was 17-11.

As usual it was Sinclair Buckstaff, Barton Conant, and Chuck Seymour coming through for Tech. Buckstaff and Conant won by decisions, while Seymour, wrestling above his weight, in the unlimited class, came through with a pin in the quick time of 2:48.

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Essay Contests Offer Cash Prize Awards

The Elre Society of Boston is offering \$175 in prizes to college students for the three best essays of 3,000 to 5,000 words on the subject, "My Irish Heritage." Entries must be submitted by March 15, 1951. Application blanks and further information may be obtained from Miss Rosanna M. Dowd, 14 Lakeville Road, Jamaica Plain 30, Mass.

Awards of \$1250 will be made for the best studies of "Problems Resulting from Motor Vehicle Accidents and the Compensation of Victims Thereof," by the Robert S. Marx Foundation. Entry blanks must be submitted by March 15, 1951, but the essays (5000 to 15,000 words) need not be submitted until September 30, 1951. Entry blanks and further details may be obtained at the Institute Committee office in Walker.

The French government is offering a three months' visit to Paris as prize of its contest for the best essay on that city. Information may be obtained from Travel & Study Inc., 110 East 57th Street, New York 22, N. Y.

Development

(Continued from Page 1)

that this effort in support of the Institute comes to a conclusion just at the time when the Institute must accept large responsibilities in behalf of national defense, and when the resources and facilities made possible by the development program will yield immediate dividends to the nation.

"The completion of this particular intensive campaign does not mean that the Institute's financial problems are solved or ameliorated. The price of survival of the private institution must be sustained and aggressive solicitation of new support. M.I.T. is no exception, and we must, therefore, plan on an unremitting effort to secure support from private sources. We intend to do this. Plans are now being completed for a permanent development office and program which can insure this long-term effort.

I believe that the Institute should plan on obtaining at least another \$10,000,000 in capital funds within the next five years, and that it is not unrealistic for us to strive to double this amount in addition to the \$20,000,000 we have already secured. The objective is not to grow bigger, but rather to grow stronger and more effective and steadily to increase the quality of our education."

Dr. Killian said that in order to maintain quality of technical education in the Institute the administration had concluded that it should not make any plans for accelerating its program by requiring students to go to school the year round. Experience in the last war, he said, clearly demonstrated that this kind of schedule definitely reduced standards of education, and that such a program of year-round education should be required only as a last resort.

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NOTICES

TCA Contributions

The TCA requests that all contributions pledged to the TCA Financial Drive last fall be paid as soon as possible so that the drive books may be closed before the end of the fiscal year. Pledges are payable either at the Bursar's Office or at the TCA office in Walker Memorial.

Baker Memorial Contributions

Contributions pledged to the Baker Memorial Fund may be paid now at the Cashier's Office.



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Air Force

(Continued from Page 1)

and medal, Dr. Draper said, "The Institute provides a working environment that not only permits but also effectively stimulates the conversion of abstract problems into proven and producible equipment."



**National
Ski Jump**

FEBRUARY 10th, 11th
BRATTLEBORO VERMONT

Mobilization

(Continued from Page 1)

the present world situation is deplorable; there has been a 50% increase in drunkenness since 1941; and "Liquor Lena and College Charley are having a better time of it than ever before."

Safety engineer Mark Dondero stated that an M.I.T. Defense Council will not even attempt to protect the Institute against a direct atom bomb hit. All we can do is to seek protection from a "miss," Dondero summarized. Nevertheless, the committee expects to distribute some 10,000 pamphlets—describing the latest methods of protection against atomic attack—to every individual connected with Technology. This will be done within the next few days, Dondero stated.

What a fool the groundhog would be to show his head at all this month.

Accelerator

(Continued from Page 1)

who have the unusual educational experience of using the linear accelerator as a research tool in modern physics.

Electrons shoot into the linear accelerator at nearly the speed of light from an electrostatic generator of the type originally developed by Dr. Robert J. Van de Graaff, professor of physics. They rush the length of the 21-foot tube by riding on waves of high-frequency electricity acquiring more speed and energy.

At the end of the tube, electrons with up to 17 million volts of energy enter a vacuum-tight metal box. In their collisions with atoms in their path, these electrons knock out neutrons and high-energy x-rays, which will be of great importance for studying nuclear structure.

"Magnetrons"

The waves on which the electrons ride down the 21-foot tube are generated by 21 radio transmitters of the type used in radar sets, technically known as "magnetrons," one to each foot. One of the difficult things about building a linear accelerator of this type is to get these 21 tubes operating in the synchronism, so that each electron is pushed ahead and not pushed backward when it enters successive sections.

The solution is to let one of the magnetrons set the pace for all the rest. The transmitter tubes are divided into seven groups of three each, and in each group one magnetron is designated as master, to guide the other two workers. The masters, in turn, are guided by one control group of three—and within this group one is master and two are workers. This ruling master is the official timepiece of the organization, making sure that electrons speed smoothly down the full length of the tube.

So light... so dry
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